

CLAIMS

1. A method of forming a semiconductor device comprising providing a semiconductor substrate comprising circuitry and terminal means for
5 establishing electrical connection to the circuitry; providing a sheet for forming a further layer of the device, the sheet comprising at least one groove; applying adhesive to at least one of said substrate and said sheet; and aligning said substrate and said sheet in a position such that said at least one groove faces said terminal means and attaching said substrate and said
10 sheet together by means of said adhesive in said position.
2. A method according to claim 1, wherein the adhesive is applied solely to said sheet.
- 15 3. A method according to claim 1 or 2 wherein the terminal means comprises a plurality of bond pads.
4. A method according to claim 1, 2 or 3, wherein the semiconductor substrate comprises at least one array of organic light emitting diodes.
20
5. A method according to claim 4, wherein the further layer comprises a translucent layer.
6. A method according to claim 5, wherein the translucent layer is of
25 glass.
7. A method according to claim 5 or 6, wherein the translucent layer bears color filters.

8. A method according to any preceding claim, wherein the circuitry comprises a plurality of discrete circuit means each having terminal means at at least one edge thereof, and after attachment of the substrate to the surface said substrate and sheet are singulated by severing said sheet at the at least
5 one groove to form a plurality of devices each comprising one of said circuit means.
9. A method according to claim 8, wherein the sheet comprises a plurality of parallel grooves and a further set of parallel grooves intersecting
10 said plurality of parallel grooves at right angles, devices being contained in rectangular portions of the substrate delimited by sections of four intersecting grooves when the sheet and the substrate are attached.
10. A method according to claim 9, wherein each circuit means has
15 terminal means on all four edges of said rectangular portion.
11. A method according to any preceding claim, wherein the adhesive is applied to the entire surface of the sheet, which surface is to be attached to the substrate.
20
12. A method according to claim 8, wherein each circuit means has terminal means on only one edge thereof.
13. A method according to claim 12, wherein the sheet is severed along
25 lines offset from lines along which the substrate is severed, said lines in said substrate and said lines in said sheet being aligned with said grooves but spaced from each other across the width of said grooves.
14. A method according to claim 12 or 13, wherein the adhesive is applied
30 to parts only of the sheet.

15. A method according to claim 14, wherein the adhesive is applied to the sheet in lines parallel to the grooves.

5 16. A semiconductor device assembly comprising a semiconductor substrate comprising circuitry and terminal means for establishing electrical connection to the circuitry; and a sheet attached to the substrate by means of adhesive and forming a further layer of the device, the sheet comprising at least one groove facing and aligned with said terminal means.

10

17. A semiconductor device assembly according to claim 16, wherein the terminal means comprise a plurality of bond pads.

18. A semiconductor device assembly according to claim 16 or 17,
15 wherein the semiconductor substrate comprises at least one array of organic light emitting diodes.

19. An assembly according to claim 18, wherein the further layer comprises a translucent layer.

20

20. An assembly according to claim 19, wherein the translucent layer is of glass.

21. An assembly according to claim 19 or 20, wherein the translucent
25 layer bears color filters.

22. An assembly according to any one of claims 16 to 20, wherein the circuitry comprises a plurality of discrete circuit means each having terminal means at least one edge thereof.

30

23. An assembly according to claim 22, wherein the sheet comprises a plurality of parallel grooves and a further set of parallel grooves intersecting said plurality of parallel grooves at right angles, devices being contained in rectangular portions of the substrate delimited by sections of four
5 intersecting grooves when the sheet and the substrate are attached.

24. An assembly according to claim 23, wherein each circuit means has terminal means on all four edges of said rectangular portion.

10 25. An assembly according to claim 22, wherein each circuit means has terminal means on only one edge thereof.

26. An assembly according to claim 25, wherein the sheet comprises sheet channels for severing the sheet, offset from substrate channels along which
15 the substrate is to be severed, said channels in said substrate and said channels in said sheet being aligned with said grooves but spaced from each other across the width of said grooves.

27. An optoelectronic device made according to the method of any one of
20 claims 13, 14 and 15, the device comprising a semiconductor substrate comprising circuitry, light emitting elements and terminal means for establishing electrical connection to the circuitry; and a sheet attached to the substrate by means of adhesive and forming a further layer of the device, the sheet having a portion extending beyond the substrate, said portion having
25 been formed during the step of severing the sheet along lines offset from lines along which the substrate is severed.

28. A device according to claim 27, wherein the terminal means comprise a plurality of bond pads.

29. A device according to claim 28, wherein the semiconductor substrate comprises at least one array of organic light emitting diodes.
30. A device according to claim 29, wherein the further layer comprises a
5 translucent layer.
31. A device according to claim 30, wherein the translucent layer is of glass.
- 10 32. A device according to claim 30 or 31, wherein the translucent layer bears color filters.